Y10 MYP Maths

[Mr. Davis' Group]

Worksheet 2 on quadratics

A. Solve the following quadratic equations:

(a) $x^2 - 2x - 35 = 0$ **(b)** $x^2 + 2x - 15 = 0$ **(c)** $x^2 - 81 = 0$

B. Solve the following quadratic equations:

(a) $2x^2 - 5x - 3 = 0$ **(b)** $3x^2 - 4x + 1 = 0$ **(c)** $4x^2 + 7x + 3 = 0$

(d) $2x^2 + 5x - 7 = 0$ **(e)** $7x^2 - 6x - 1 = 0$ **(f)** $5x^2 - 13x - 6 = 0$

C. Solve the following quadratic equations:

(a) $6x^2 + x - 1 = 0$ **(b)** $9x^2 + 12x - 5 = 0$ **(c)** $4x^2 - 1 = 0$

D. As you know, sometimes a quadratic expression cannot be factorised. To solve a quadratic equation when this is the case, we would need to try another method. One such method is a ***graphical method.***

Theory
We want to solve the equation $ax^2 + bx + c = 0$, but the expression $ax^2 + bx + c$ cannot be factorised.

Simply plot an accurate graph of $y = ax^2 + bx + c$. The shape will be a very characteristic parabola. The solutions of the original equation $ax^2 + bx + c = 0$ will be found where the parabola cuts the x-axis. This method is not very accurate because it relies heavily on how well you draw the graph! (Note, if the parabola never cuts the x-axis, then the equation has no solutions.

Use this graphical method to find approximate solutions to:

(a) $x^2 + x - 3 = 0$ **(b)** $x^2 - x - 1 = 0$ **(c)** $-x^2 - 2x + 2 = 0$

(d) $2x^2 + x - 2 = 0$